

**IN THE CLAIMS:**

1 1-19. (CANCELLED)

1 20. (CURRENTLY AMENDED) A computer readable medium containing executable  
2 program instructions for use by an intermediate network device having a plurality of  
3 ports for receiving and forwarding network messages, the executable program instruc-  
4 tions comprising program instructions for:

5       configuring one or more ports as access ports, wherein an access port is a  
6 port that does not provide connectivity to other portions of a computer network,  
7 but instead connects to a Local Area Network (LAN), a server or an end station;

8       configuring one or more access ports as rapid forwarding ports;

9       identifying all ports that have been configured as access ports with rapid forward-  
10 ing; and

11       upon initialization of the device, placing each identified access port with rapid  
12 forwarding directly to a forwarding spanning tree port state, without transitioning such  
13 identified ports between any intermediary spanning tree port states, so that network mes-  
14 sages may be received and forwarded by such identified ports immediately.

1 21. (ORIGINAL) The computer readable medium of claim 20 comprising further pro-  
2 gram instructions for:

3       monitoring each of the one or more access ports configured with rapid forwarding  
4 for receipt of a configuration bridge protocol data unit (BPDU) message; and

5       in response to receiving a BPDU message at one of the access ports configured  
6 with rapid forwarding, placing the respective access port in a blocking spanning tree port

7 state.

1 22. (ORIGINAL) The computer readable medium of claim 21 wherein  
2 the intermediate network device has a memory, and  
3 the configuration of ports as access ports with rapid forwarding is stored at the  
4 memory.

1 23. (ORIGINAL) The computer readable medium of claim 21 comprising further pro-  
2 gram instructions for placing one or more other ports in a listening spanning tree port  
3 state, upon initialization of the device.

1 24. (CURRENTLY AMENDED) A computer readable medium containing executable  
2 program instructions for use by an intermediate network device having a plurality of  
3 ports for receiving and forwarding network messages, the executable program instruc-  
4 tions comprising program instructions for:  
5 configuring one or more ports as access ports;  
6 configuring one or more access ports as rapid forwarding ports;  
7 identifying all ports that have been configured as access ports with rapid forward-  
8 ing; and  
9 upon initialization of the device, placing each identified access port with rapid  
10 forwarding directly to a forwarding spanning tree port state, without transitioning such  
11 identified ports between any intermediary spanning tree port states, so that network mes-  
12 sages may be received and forwarded by such identified ports immediately;  
13 ~~The computer readable medium of claim 20~~  
14 wherein each access port configured with rapid forwarding is placed in the for-

15     warding state prior to a link-up signal being received at the respective port.

1     25. (ORIGINAL) The computer readable medium of claim 20 comprising further pro-  
2     gram instructions for generating and issuing one or more configuration bridge protocol  
3     data unit (BPDU) messages from each access port configured as rapid forwarding.

1     26. (ORIGINAL) The computer readable medium of claim 20 wherein an end station is  
2     not coupled to a selected one of the access ports configured with rapid forwarding until  
3     after the respective access port is placed in the forwarding spanning tree port state.

1     27. (ORIGINAL) The computer readable medium of claim 26 comprising further pro-  
2     gram instructions for generating and issuing one or more configuration bridge protocol  
3     data unit (BPDU) messages from each access port configured as rapid forwarding.

1     28. (CURRENTLY AMENDED) A method comprising:  
2     |         configuring one or more ports of a network device as access ports wherein  
3     |     an access port is a port that does not provide connectivity to other portions of a  
4     |     computer network, but instead connects to a Local Area Network (LAN), a server  
5     |     or an end station;  
6     |         configuring one or more access ports to have a rapid forwarding designation;  
7     |         identifying the ports that have been configured as access ports with rapid forward-  
8     |     ing designation; and  
9     |         upon initialization of the network device, placing each identified access port with  
10    |     rapid forwarding designation directly into a forwarding spanning tree port state, without  
11    |     transitioning such identified ports between any intermediary spanning tree port states, to  
12    |     enable network messages to be received and forwarded by such identified ports immedi-

13 ately.

1 29. (PREVIOUSLY PRESENTED) The method of claim 28 further comprising:  
2 monitoring each of the one or more access ports configured with rapid forwarding  
3 port designation for receipt of a configuration bridge protocol data unit (BPDU) message;  
4 and  
5 in response to receiving a BPDU message at one of the access ports configured  
6 with rapid forwarding designation, placing the respective access port in a blocking span-  
7 ning tree port state.

1 30. (CURRENTLY AMENDED) ~~The method of claim 28, wherein the step of configur-~~  
2 ~~ing one or more access ports further comprises:~~

3 A method comprising:

4 configuring one or more ports of a network device as access ports;

5 configure one or more access ports to have a rapid forwarding designation by se-  
6 lecting with a management protocol, by a network administrator, the one or more access  
7 ports to have rapid forwarding designation;

1 identifying the ports that have been configured as access ports with rapid forward-  
2 ing designation; and

3 upon initialization of the network device, placing each identified access port with  
4 rapid forwarding designation directly into a forwarding spanning tree port state, without  
5 transitioning such identified ports between any intermediary spanning tree port states, to  
6 enable network messages to be received and forwarded by such identified ports immedi-  
7 ately.

1 31. (PREVIOUSLY PRESENTED) The method of claim 28 further comprising:

2           transitioning one or more other access ports that do not have rapid forwarding  
3           designation to a listening spanning tree port state, upon initialization of the device.

1    32. (PREVIOUSLY PRESENTED) The method of claim 28, wherein each access port  
2    configured with rapid forwarding designation is placed in the forwarding state prior to a  
3    link-up signal being received at the respective port.

1    33. (PREVIOUSLY PRESENTED) The method of claim 28 further comprising:  
2           issuing one or more configuration bridge protocol data unit (BPDU) messages  
3           from each access port configured to have rapid forwarding designation.

1    34. (CURRENTLY AMENDED) An apparatus comprising:  
2           a port configuration entity operable to maintain configuration data that in-  
3    dicates one or more ports of the apparatus are access ports, wherein an access port  
4    is a port that does not provide connectivity to other portions of a computer net-  
5    work, but instead connects to a Local Area Network (LAN), a server or an end  
6    station, the configuration data to also indicate ~~and that~~ one or more of the access  
7    ports have a rapid forwarding designation;

8           an enhanced spanning tree entity operable to query the port configuration entity  
9    and to identify the ports that have been configured as access ports with rapid forwarding  
10   designation; and

11          a state machine engine operable to place each identified access port with rapid  
12   forwarding designation directly into a forwarding spanning tree port state, without transi-  
13   tion of such identified ports between any intermediary spanning tree port states, to enable  
14   network messages to be received and forwarded by such identified ports immediately.

1 35. (PREVIOUSLY PRESENTED) The apparatus of claim 34 wherein the enhanced  
2 spanning tree entity is further operable to monitor each of the one or more access ports  
3 configured with rapid forwarding port designation for receipt of a configuration bridge  
4 protocol data unit (BPDU) message, and in response to receiving a BPDU message at one  
5 of the access ports configured with rapid forwarding designation, to place the respective  
6 access port in a blocking spanning tree port state.

1 36. (CURRENTLY AMENDED) ~~The apparatus of claim 34 further comprising: An ap-~~  
2 ~~paratus comprising:~~

3 a port configuration entity operable to maintain configuration data that indicates  
4 one or more ports of the apparatus are access ports, and that one or more of the access  
5 ports have a rapid forwarding designation;

6 a management protocol operable to permit a network administrator to select the  
7 one or more access ports to have rapid forwarding designation;

8 an enhanced spanning tree entity operable to query the port configuration entity  
9 and to identify the ports that have been configured as access ports with rapid forwarding  
10 designation; and

11 a state machine engine operable to place each identified access port with rapid  
12 forwarding designation directly into a forwarding spanning tree port state, without transi-  
13 tion of such identified ports between any intermediary spanning tree port states, to enable  
14 network messages to be received and forwarded by such identified ports immediately.

1 37. (PREVIOUSLY PRESENTED) The apparatus of claim 34 wherein the state machine  
2 engine is further operable to transition one or more other access ports that do not have  
3 rapid forwarding designation to a listening spanning tree port state, upon initialization of  
4 the device.

1 38. (PREVIOUSLY PRESENTED) The apparatus of claim 34 wherein the state machine  
2 engine is operable to place each identified access port with rapid forwarding designation  
3 into the forwarding spanning tree port state prior to a link-up signal being received at the  
4 respective port.

1 39. (PREVIOUSLY PRESENTED) The apparatus of claim 34 wherein the state machine  
2 engine is operable to place each identified access port with rapid forwarding designation  
3 into the forwarding spanning tree port state while the respective port is uncoupled from  
4 any end station.

1 40. (PREVIOUSLY PRESENTED) An apparatus comprising:

2 means for configuring one or more ports of a network device as access ports;

3 means for configuring one or more access ports to have a rapid forwarding design-  
4 nation;

5 means for identifying the ports that have been configured as access ports with  
6 rapid forwarding designation; and

7 means for placing each identified access port with rapid forwarding designation  
8 directly into a forwarding spanning tree port state upon initialization of the device, with-  
9 out transitioning such identified ports between any intermediary spanning tree port states,  
10 to enable network messages to be received and forwarded by such identified ports imme-  
11 diately.

1 41. (PREVIOUSLY PRESENTED) The method of claim 28, wherein an end station is  
2 not coupled to a selected one of the access ports configured with rapid forwarding design-  
3 nation until after the respective access port is placed in the forwarding spanning tree port  
4 state.

1 42. (PREVIOUSLY PRESENTED) An apparatus comprising:  
2 a port configuration entity operable to maintain configuration data that indicates  
3 one or more ports have been configured with a management protocol to have a rapid for-  
4 warding designation;  
5 an enhanced spanning tree entity operable to query the port configuration entity  
6 and to identify the ports that have been configured with rapid forwarding designation;  
7 and  
8 a state machine engine operable to place each identified port with rapid forward-  
9 ing designation directly into a forwarding spanning tree port state, without transition of  
10 such identified ports between any intermediary spanning tree port states.

1 43. (PREVIOUSLY PRESENTED) The apparatus of claim 42 wherein the state machine  
2 engine is operable to place each identified port with rapid forwarding designation into the  
3 forwarding spanning tree port state prior to a link-up signal being received at the port.

1 44. (NEW) The method of claim 30 further comprising:  
2 monitoring each of the one or more access ports configured with rapid forwarding  
3 port designation for receipt of a configuration bridge protocol data unit (BPDU) message;  
4 and  
5 in response to receiving a BPDU message at one of the access ports configured  
6 with rapid forwarding designation, placing the respective access port in a blocking span-  
7 ning tree port state.

1 45. (NEW) The method of claim 30 further comprising:  
2 transitioning one or more other access ports that do not have rapid forwarding



3 designation to a listening spanning tree port state, upon initialization of the device.

1 46. (NEW) The method of claim 30, wherein each access port configured with rapid for-  
2 warding designation is placed in the forwarding state prior to a link-up signal being re-  
3 ceived at the respective port.

1 47. (NEW) The method of claim 30 further comprising:  
2 issuing one or more configuration bridge protocol data unit (BPDU) messages  
3 from each access port configured to have rapid forwarding designation.

1 48. (NEW) The apparatus of claim 36 wherein the enhanced spanning tree entity is fur-  
2 ther operable to monitor each of the one or more access ports configured with rapid for-  
3 warding port designation for receipt of a configuration bridge protocol data unit (BPDU)  
4 message, and in response to receiving a BPDU message at one of the access ports config-  
5 ured with rapid forwarding designation, to place the respective access port in a blocking  
6 spanning tree port state.

1 49. (NEW) The apparatus of claim 36 wherein the state machine engine is further oper-  
2 able to transition one or more other access ports that do not have rapid forwarding desig-  
3 nation to a listening spanning tree port state, upon initialization of the device.

1 50. (NEW) The apparatus of claim 36 wherein the state machine engine is operable to  
2 place each identified access port with rapid forwarding designation into the forwarding  
3 spanning tree port state prior to a link-up signal being received at the respective port.

- 1 51. (NEW) The apparatus of claim 36 wherein the state machine engine is operable to
- 2 place each identified access port with rapid forwarding designation into the forwarding
- 3 spanning tree port state while the respective port is uncoupled from any end station.